

REMARKS

Applicant thanks the Examiner for the very thorough consideration given the present application. Claims 8, 9, 10, 29-31 and 33-38 are now present in this application. Claims 20, 21, 24, and 32 have been canceled as directed to a non-elected invention under 37 C.F.R. § 1.142, the requirement having been made by the Examiner in the Office Action dated July 17, 2007, and are being filed in a Divisional application. Claims 8, 9, 10, 29, 30 and 37 are independent. Amendments have been made to the claims. Reconsideration of this application, as amended, is respectfully requested.

Priority Under 35 U.S.C. § 119

Applicants thank the Examiner for acknowledging Applicants' claim for foreign priority under 35 U.S.C. § 119, and receipt of the certified priority document.

Claim Objections

The Examiner has objected to claims 8, 9, 10, 29, 30 and 37 because of a grammatical informality. In order to overcome this objection, Applicants have amended these claims merely to correct the deficiencies pointed out by the Examiner. Reconsideration and withdrawal of this objection are respectfully requested.

Rejection Under 35 U.S.C. § 112, 2nd Paragraph

Claims 8, 9, 10, 29 and 30 stand rejected under 35 U.S.C. § 112, 2nd Paragraph. This rejection is respectfully traversed. The Examiner has set forth certain instances wherein the claim language is allegedly unclear. In order to overcome this rejection, Applicants have amended claims 8, 9, 10, 29 and 30 to correct each of the deficiencies specifically pointed out by the Examiner. Applicants respectfully submit that the claims, as amended, particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Rejections under 35 U.S.C. §103

Claim 8 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Shoenfeld. This rejection is respectfully traversed. A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

The Examiner states that Shoenfeld layers 23 and 27 form a brightness gradient and that it would have been obvious to "make layer 27 overlap layer 23 (via adhesive or the like) in order to simplify the manufacturing process."

Applicants respectfully submit that the pattern 27 of oval portions 28 on reflector 23 of Shoenfeld is not disclosed as overlapping layers, nor are there reflection layers overlapped at a position equivalent to the central portion of the object's surface to be illuminated. In addition, the Examiner has not presented any factual evidence establishing that overlapping them would be obvious. Moreover, making them removable in the manner suggested would destroy the very purpose of Shoenfeld's illuminator, which is to provide "uniform illumination intensity" as stated in the Abstract and provide "even lighting over its surface", column 1, lines 8-11.

Applicants respectfully submit that independent claim 8 recites a combination of elements in a backlight unit, wherein the reflection portion forms a brightness gradient that varies in both the horizontal and vertical directions. To the contrary, Shoenfeld provides uniform brightness in both directions on the surface of the object to be illuminated. For example, Shoenfeld describes that "The invention is more specifically concerned with an x-ray illuminator that provides even lightning over its surface without bright or dark areas to facilitate film-based studies by radiologists or other professionals." (col. 1, lines 8 to 12); "The current international standards for x-ray illuminators, which have been proposed for the United States, include the need for uniformity of light output across the entire viewing surface of the front diffuser screen." (col. 1, lines 44 to 47); "To obtain uniform illumination ..." (col. 2, line 52); "...this invention intentionally reduces light output in the brightest areas of the illuminator to equal that of the areas of lowest illumination" (col. 3, line 12 to 15); "..., uniformity is achieved using presently

existing non-uniform lamp tubes, ..." (col. 3, lines 21 to 22); "...to achieve uniformity" (col. 3, line 39); "to make the output more uniform" (col. 3, line 49). Shoenfeld even states that "It is recommended that when the fluorescent lamps are installed, both initially and later to replace a failed tube, all four tubes be replaced at the same time, with tubes from the same batch or lot." (col. 5, lines 22 to 26), Shoenfeld asserts it is necessary to prevent the brightness on the object's surface to be illuminated from being nonuniform.

Applicants respectfully submit that this combination of elements as set forth in independent claim 8 is not disclosed or made obvious by the prior art of record, including Shoenfeld, for the reasons discussed above. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Claims 9, 10, 33 and 34 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shoenfeld in view of Shaw. This rejection is respectfully traversed. A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

The Examiner states that Shoenfeld "lacks the teaching of making the brightness of the light source located at the central portion...relatively higher than the brightness of the light sources located at both ends." Shaw is relied upon for a teaching of "adjusting the brightness of the light sources located at the center so that the central portion is illuminated relatively higher than both ends."

Applicants respectfully submit that the Examiner has correctly characterized the Shoenfeld disclosure, since it designed to give totally uniform illumination. As described above for claim 8, claims 9 and 10 also describes the feature of having a first region with the reflection layers being overlapped at a position equivalent to the central portion on the object's surface to be illuminated by the plurality of light sources. In Fig. 5 of Shoenfeld, there is no region with reflection layers overlapped at a position equivalent to the central portion of the object's surface to be illuminated by the light sources. Claims 9 and 10 also include the feature of making the brightness of the light sources located at the position equivalent to the central

portion on the surface to be illuminated relatively higher than the brightness of the light sources located at both ends.

But the Examiner's reliance upon Shaw is not understood, as it also is designed to provide a dimmable backlight that avoids "non-uniformed luminance artifacts within the display that would be objectionable in a primary flight display application." That is, Shaw's backlight also provides uniform light, not light brighter in the center than at the ends. So it is not clear how one could combine two references that are limited to providing uniform backlight illumination and result in a backlight that requires a brightness gradient, i.e. the value of light that varies in both the horizontal and vertical directions as claimed. Both Shoenfeld and Shaw teach away from this feature of the instant invention.

Finally, Applicants respectfully submit that independent claims 9 and 10 recite a combination of elements in a backlight unit wherein the reflection portion comprises at least a first and a second reflection layer having a predetermined level of light reflectance and transmittance, and a first region with the first and second reflection layers being overlapped at a position equivalent to the central portion and a second region consisting of the first reflection layer only, and a brightness gradient that varies in both the horizontal and vertical directions. Applicants respectfully submit that this combination of elements as set forth in independent claims 9 and 10, nor therefore in dependent claims 33 and 34, is not disclosed or made obvious by the prior art of record, including Shoenfeld and Shaw, for the reasons discussed above. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Claims 29, 30, 31 and 35-38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shoenfeld in view of Ogiwara. This rejection is respectfully traversed. A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

The Examiner states it would have been obvious in view of the lamp spacing in Figure 7 of

Ogiwara to make the lamp clearance smaller at the center of the Shoenfeld backlight, to increase the luminance in the central portion. Once again, Applicants submit that such a modification of the Shoenfeld device would destroy it for its intended purpose, which is uniform illumination of medical x-rays, and is therefore not obvious. With reference to Fig. 7, Ogiwara discloses making the clearance of the fluorescent lamps located at the position corresponding to the central portion of the object to be illuminated relatively smaller than the clearance of the fluorescent lamps located at both ends and the output of each lamp may be changed to attain uniformity on the illuminated surface (in paragraph [0285]). However, Ogiwara's construction makes the brightness of the fluorescent lamps higher by making the clearance between the fluorescent lamps located at the position corresponding to the central portion of the object to be illuminated smaller, and instead makes the brightness of the fluorescent lamps located at both ends lower by making the clearance between the fluorescent lamps located on the both ends larger. Thus, once again, if Ogiwara's system were to be applied to Shoenfeld, it would destroy the uniform light that Shoenfeld states is critical to the proper reading of X rays.

Claims 29, 30 and 37 include the feature of making the clearance between the fluorescent lamps located at the position corresponding to the central portion of the object to be illuminated relatively smaller than the clearance between the fluorescent lamps located at both ends. The Examiner asserts that this feature is disclosed by Ogiwara, whose teaching can be easily applied to the illuminator of Shoenfeld. Claim 37 also includes the feature of making the brightness of the fluorescent lamps located at the position corresponding to the central portion of the object to be illuminated relatively higher than the brightness of the fluorescent lamps located at both ends. The same argument as described above for claims 8, 9 and 10 is applicable to these claims.

Applicants respectfully submit that this combination of elements as set forth in independent claims 29, 30 and 37, and therefore in dependent claims 31, 35, 36 and 38, is not disclosed or made obvious by the prior art of record, including Shoenfeld and Ogiwara, for the reasons discussed above. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Additional Cited References

Since the remaining reference cited by the Examiner has not been utilized to reject the claims, but has merely been cited to show the state of the art, no comment need be made with respect thereto.

Conclusion

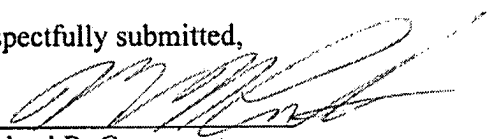
All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application; the Examiner is respectfully requested to contact Paul T. Sewell, Reg. No. 61,784 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

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